

REMARKS

Applicant requests favorable reconsideration and allowance of the subject application in view of the preceding amendments and the following remarks.

Claims 1-13, 16 and 18-22 are presented for consideration. Claims 1, 10, 11, 18, 19, 21 and 22 are independent. Claims 14, 15 and 17 have been canceled without prejudice or disclaimer. Claims 1-13 and 16 have been amended to clarify features of the subject invention, while claims 18-22 have been added to recite additional features of the present invention. Support for these changes and claims can be found in the original application, as filed. Therefore, no new matter has been added.

Applicant requests favorable reconsideration and withdrawal of the rejections set forth in the above-noted Office Action.

Claims 14, 15 and 17 were rejected under 35 U.S.C. § 101. The Examiner asserted that the subject matter recited in these claims is directed to non-statutory subject matter. This contention is respectfully traversed. Applicant submits that one having ordinary skill in the art would readily understand the subject matter of the present invention recited in these claims, which is directed to machines or articles of manufacture (i.e., statutory subject matter). Therefore, this rejection is respectfully traversed. Nevertheless, to advance prosecution of this application, Applicant has canceled claims 14, 15 and 17 without prejudice or disclaimer.

Applicant notes with appreciate that claims 2-9 have been indicated as containing allowable subject matter and would be allowed if rewritten in independent form. Applicant earnestly believes, however, that he should be entitled to the projection afforded by independent claim 1, as presented, as well as by the remaining claims presented. Therefore, Applicant

requests favorable reconsideration and withdrawal of the art rejections set forth in the above-noted Office Action.

Claims 1, 10 and 11 were rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 6,100,515 to Nishi et al. Claims 12, 13, and 16 were rejected under 35 U.S.C. § 103 as being unpatentable over the Nishi et al. patent in view of U.S. Patent No. 5,621,216 to Clarke et al. Applicant submits that the cited art, whether taken individually or in combination, does not teach many features of the present invention as recited in independent claims 1, 10 and 11, for example. Therefore, these rejections are respectfully traversed.

In one aspect of the invention, independent claim 1 recites a scanning exposure apparatus that includes a master stage for scanning a master, a substrate stage for scanning a substrate, transfer means for supplying/recovering the substrate to/from the substrate stage, positioning means for relatively positioning the substrate and the master and scanning velocity determination means for determining a scanning velocity so as to maximize the number of substrates that can be exposed per unit time.

In another aspect of the invention, independent claim 10 recites a device manufacturing method of manufacturing a device which includes, among other features, a step of drawing a pattern on a substrate by using an exposure apparatus. The exposure apparatus includes those features discussed with respect to independent claim 1.

In still another aspect of the invention, independent claim 11 recites a device manufacturing method that includes a step of installing manufacturing apparatuses for performing various processes, including an exposure apparatus, in a semiconductor manufacturing factory and a step of manufacturing a semiconductor device by performing a

plurality of processes using the manufacturing apparatuses. The exposure apparatus includes those features discussed above with respect to independent claim 1.

Generally speaking, the present invention is directed to providing scanning velocity means or a controller to maximize throughput of an exposure apparatus on the basis of information regarding a substrate in the exposure apparatus. The information may be, for example, the maximum number of substrates that can be exposed per unit time, a length of a pattern transferred to the substrate in a scanning direction, a length on a substrate area on the substrate, which is scanned at a constant velocity, or the number of shots for the substrate that can be exposed per unit time.

Applicant submits that the cited art does not teach or suggest such features of the present invention, as recited in independent claims 1, 10 and 11.

The Nishi et al. patent discloses an adjusting device for adjusting at least one of a scanning speed of a mask and a substrate in accordance with a change in sensitivity characteristic of the substrate or a change in an intensity distribution of the light beam passing a Fourier transform plane in an illumination optical system. In more detail, columns 3-5 of the Nishi et al. patent discuss that by determining a width LW of a projection area of a pattern of a mask, an optimum amount of exposure is imparted to a substrate in accordance with a sensitivity P expressed equation 5 in that patent using the width LW. In other words, in order to impart an optimum amount of exposure to the substrate in consideration of an upper limit V_{max} of the scanning speed of the mask, it is necessary to determine the width LW. Thus, in that patent, by determining the width LW, a scanning speed of the mask is merely controlled so as not to exceed the upper limit V_{max} rather than controlling a scan speed for maximizing a throughput on the

basis of information regarding a substrate, in the manner of the present invention recited in independent claims 1, 10 and 11.

In short, then, the Nishi et al. patent merely discusses controlling a scanning speed so as not to exceed an upper limit. Applicant submits that such a concept is entirely different from the present invention recited in independent claims 1, 10 and 11. Thus, the Nishi et al. patent does not teach or suggest the salient features of the present invention recited in those claims, including at least the feature of controlling a scanning velocity for maximizing throughput. For these reasons, Applicant submits that the Nishi et al. patent does not teach or suggest many features of the present invention as recited in independent claims 1, 10 and 11.

Applicant further submits that the remaining art cited does not cure the deficiencies noted above with respect to the Nishi et al. patent.

The Examiner relies on the Clarke et al. patent for discussing connecting a local area network to manufacturing apparatuses. The Clarke et al. patent, as with the Nishi et al. patent, however, does not teach or suggest the above-noted features of the present invention recited in independent claims 1, 10 and 11. That patent, therefore, adds nothing to the teachings of the Nishi et al. patent that would render obvious Applicant's present invention as recited in those claims.

For reasons similar to those discussed above with respect to independent claims 1, 10 and 11, Applicant submits that claims 18-22 patentably define features of the subject invention. Notably, the cited art is not read to teach or suggest such features of determining operating parameters and controlling operation on the basis of those parameters in the manner of the present invention recited in those claims. Therefore, claims 18-22 likewise should be deemed

allowable over the cited art.

For the reasons noted above, Applicant submits that the present invention, as recited in independent claims 1, 10, 11, 18, 19 , 21 and 22, is patentably defined over the cited art.

Dependent claims 2-9, 12, 13, 16 and 20 also should be deemed allowable, in their own right, for defining other patentable features of the present invention in addition to those recited in the independent claims. Further individual consideration of these dependent claims is requested.

Applicant submits that the instant application is in condition for allowance. Favorable reconsideration, withdrawal of the rejections set forth in the above-noted Office Action and an early notice of allowance are requested.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should be directed to our address listed below.

Respectfully submitted,



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